

FIG. 1A

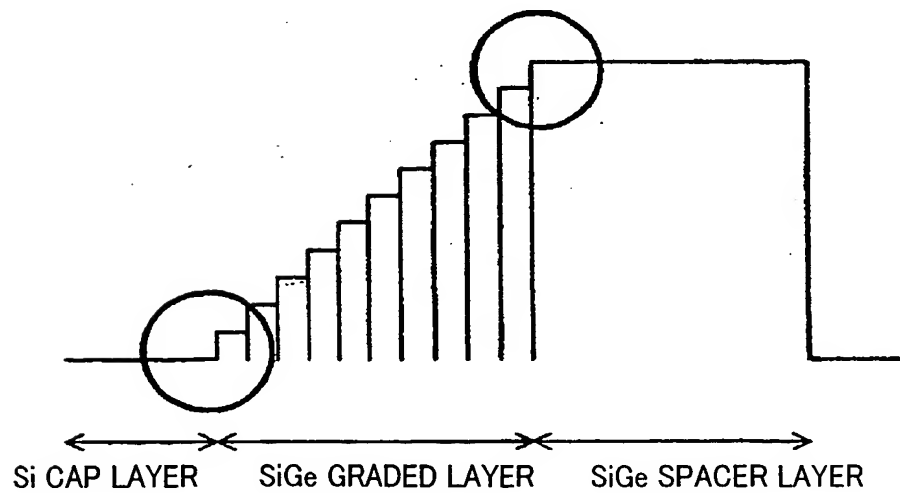


FIG. 1B

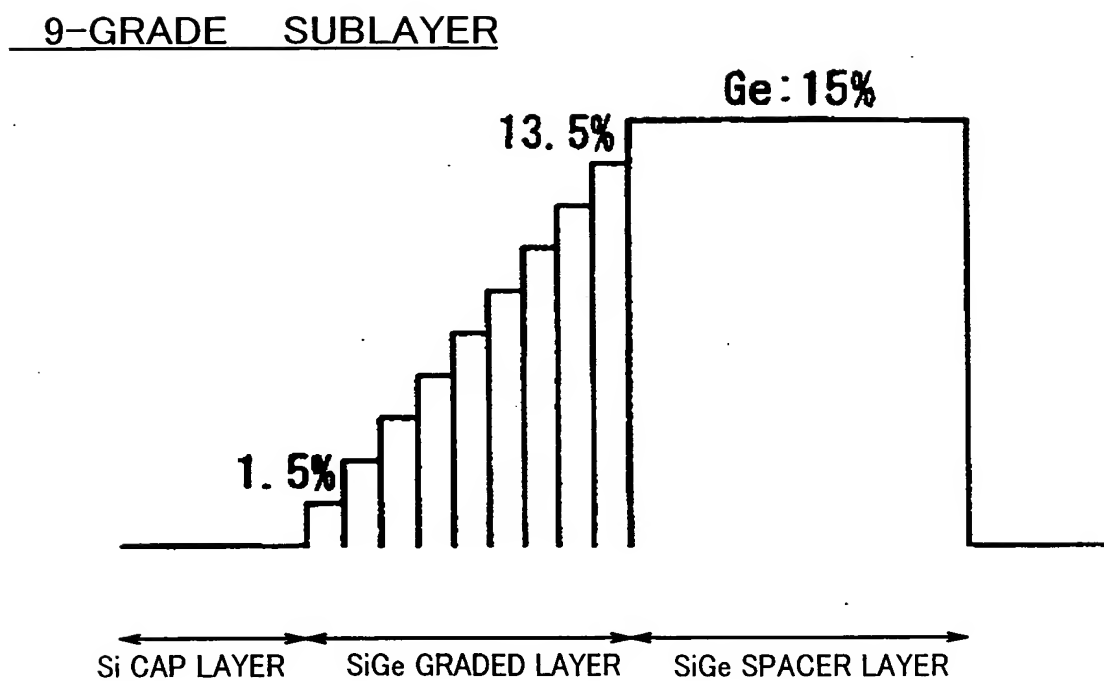


FIG. 2

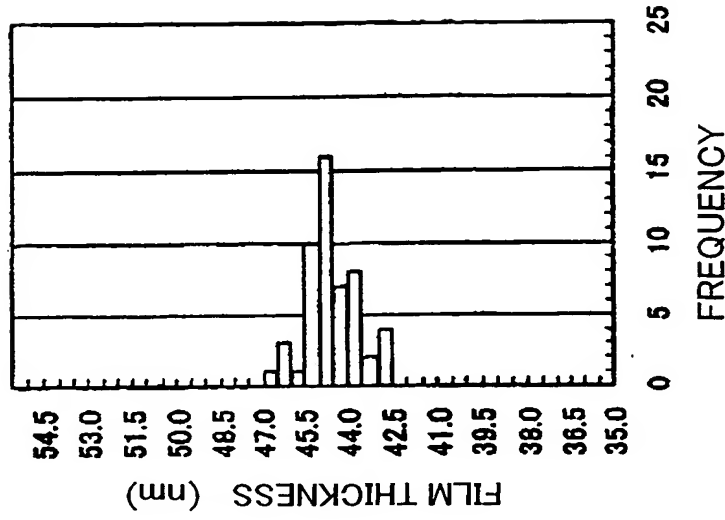
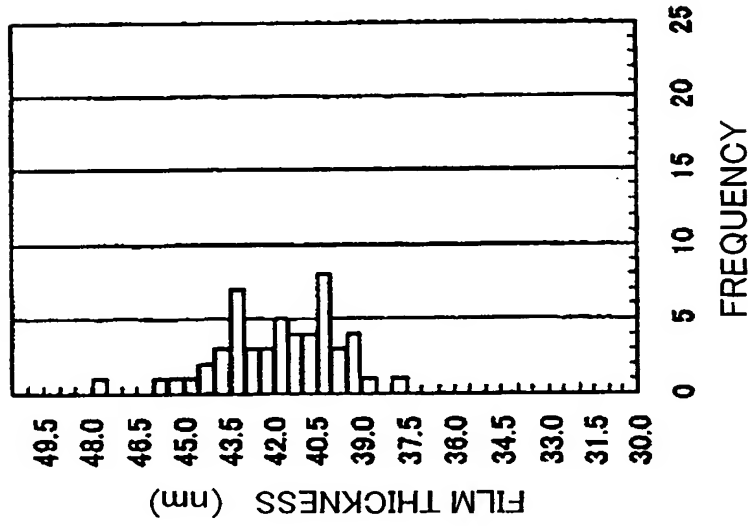
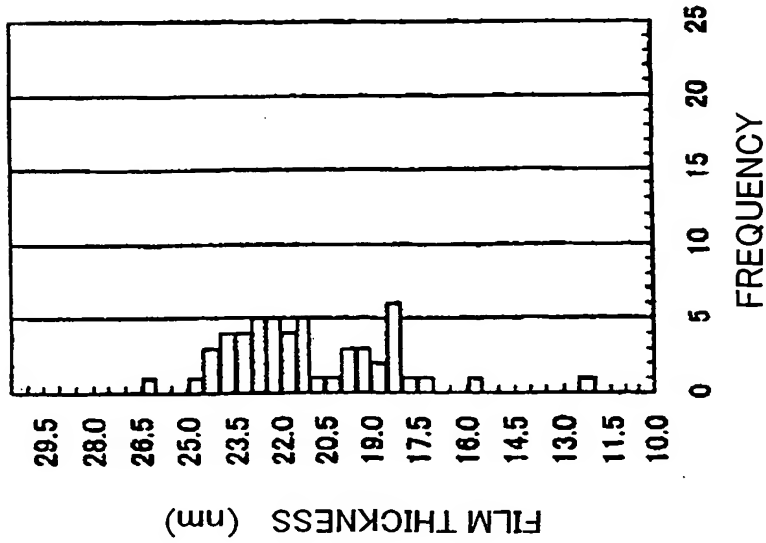


FIG. 3A

FIG. 3B

FIG. 3C

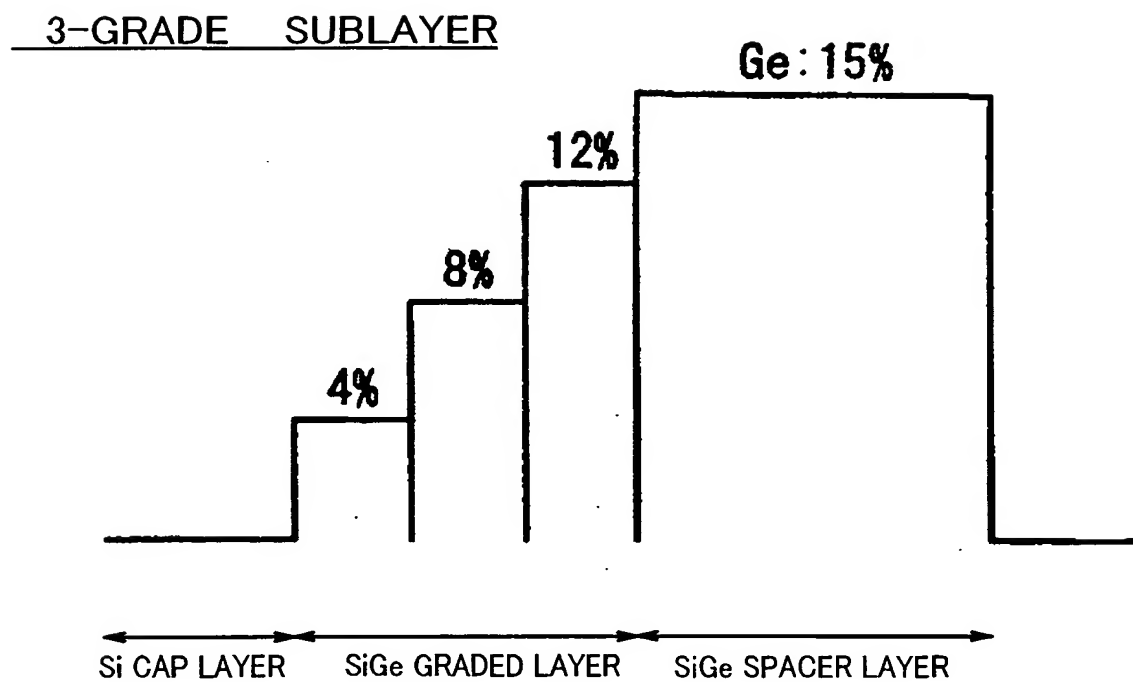
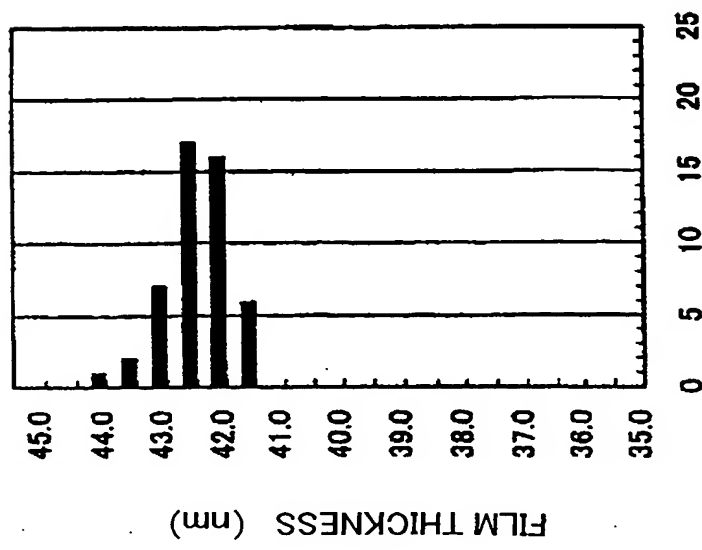


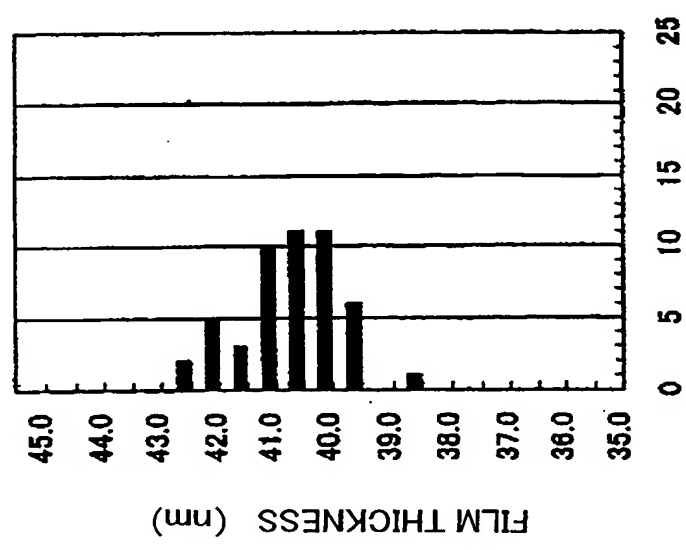
FIG. 4



ACTUALLY MEASURED VALUE

AVE 42.1nm  
MAX 43.8nm  
MIN 41.0nm  
VARIATION 3.3%

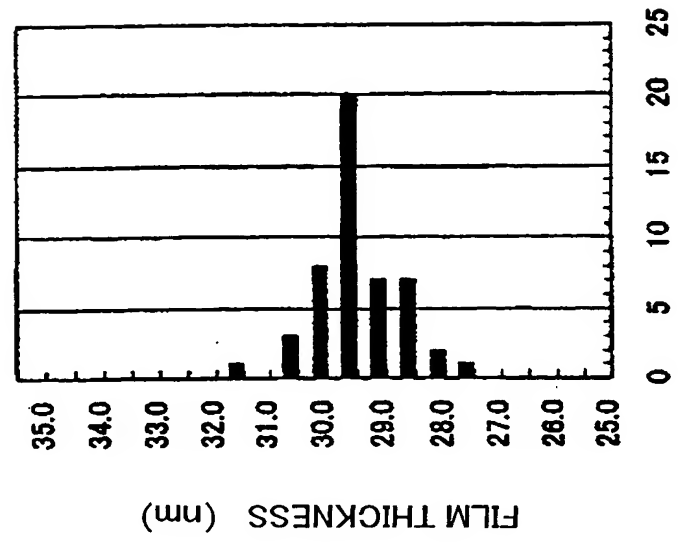
FIG. 5A



ACTUALLY MEASURED VALUE

AVE 40.3nm  
MAX 42.3nm  
MIN 38.2nm  
VARIATION 5.2%

FIG. 5B



ACTUALLY MEASURED VALUE

AVE 29.1nm  
MAX 31.2nm  
MIN 27.3nm  
VARIATION 6.7%

FIG. 5C

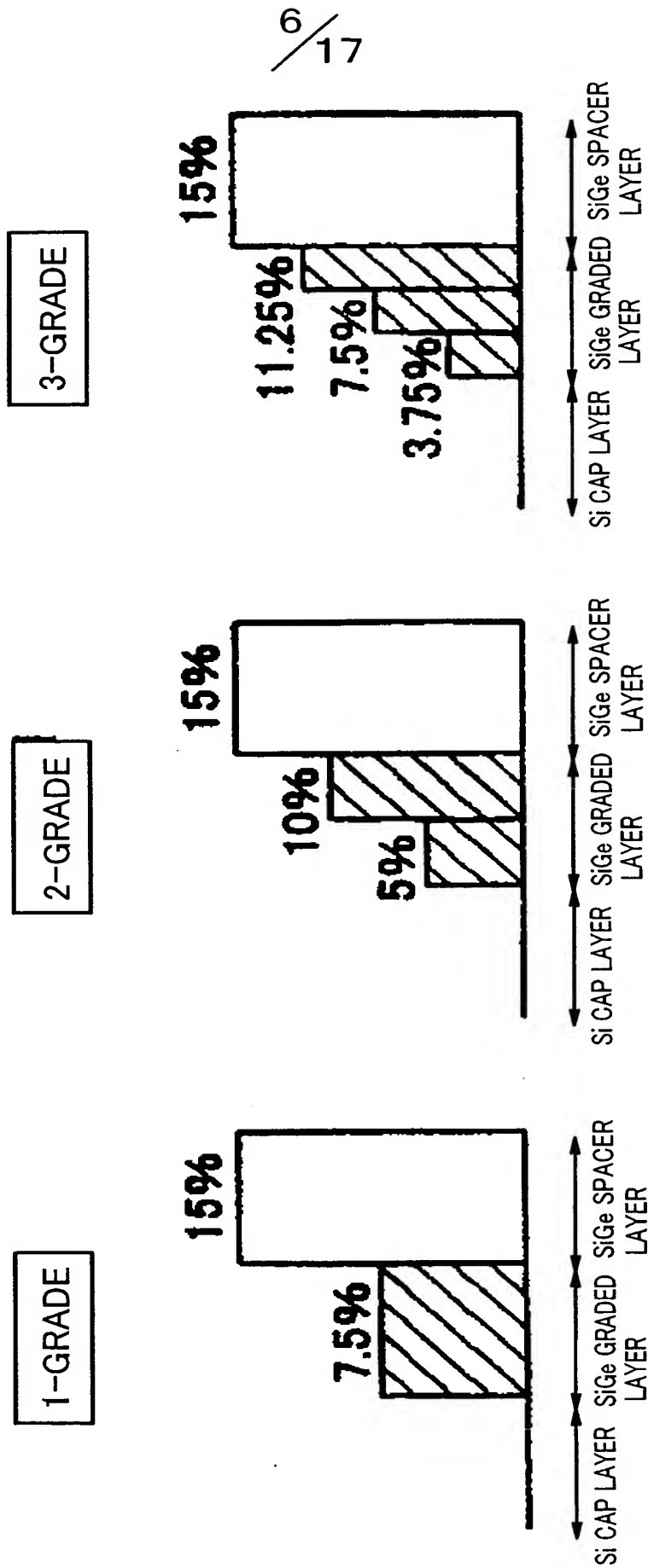


FIG. 6

	GRADED BASE LAYER - 40n				GRADED BASE LAYER - 30n				GRADED BASE LAYER - 20n			
NUMBER OF SUBLAYERS	FILM THICKNESS OF SUBLAYER	fT <sub>max</sub> (GHz)	hFE		FILM THICKNESS OF SUBLAYER	fT <sub>max</sub> (GHz)	hFE		FILM THICKNESS OF SUBLAYER	fT <sub>max</sub> (GHz)	hFE	
1	40.0	37.5	156		30.0	49.9	205		20.0	67.2	301	
2	20.0	43.4	127		15.0	55.8	167		10.0	70.6	249	
3	13.3	45.2	116		10.0	56.9	153		6.7	70.7	229	
4	10.0	46.0	109		7.5	57.1	144		5.0	70.4	218	
5	8.0	46.3	105		6.0	57.3	140		4.0	70.3	213	
6	6.7	46.4	285		5.0	57.2	137		3.3	70.2	210	
7	5.7	46.5	99		4.3	57.1	134		2.9	70.1	203	
8	5.0	46.5	99		3.8	57.1	132		2.5	70.0	201	
LINEAR APPROXIMATION		46.6	98			57.5	121			70.9	186	

FIG. 7

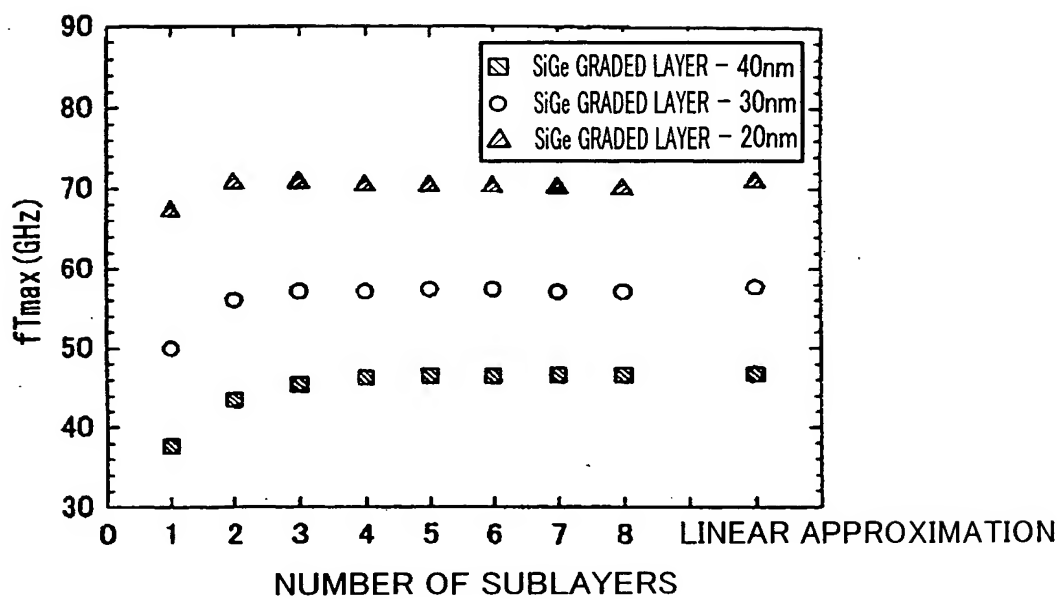


FIG. 8A

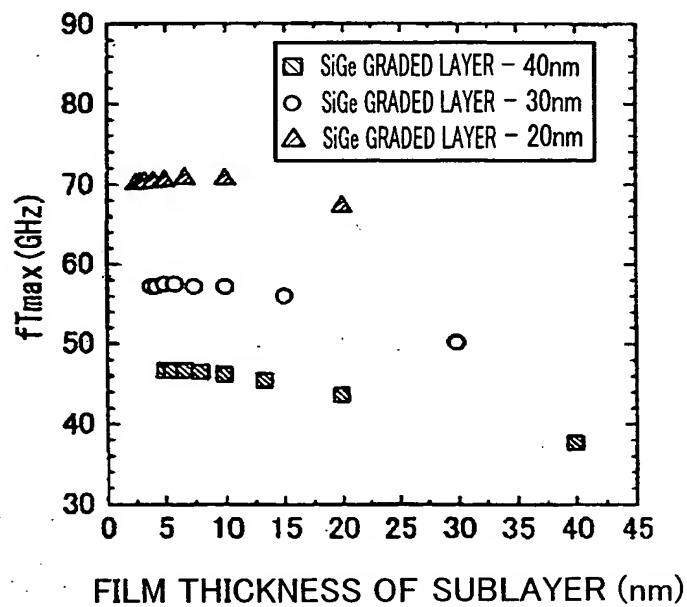


FIG. 8B



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ACTUALLY MEASURED VALUE

	fT <sub>max</sub> (GHz)
9-GRADE	37
5-GRADE	35
3-GRADE	39

FIG. 9

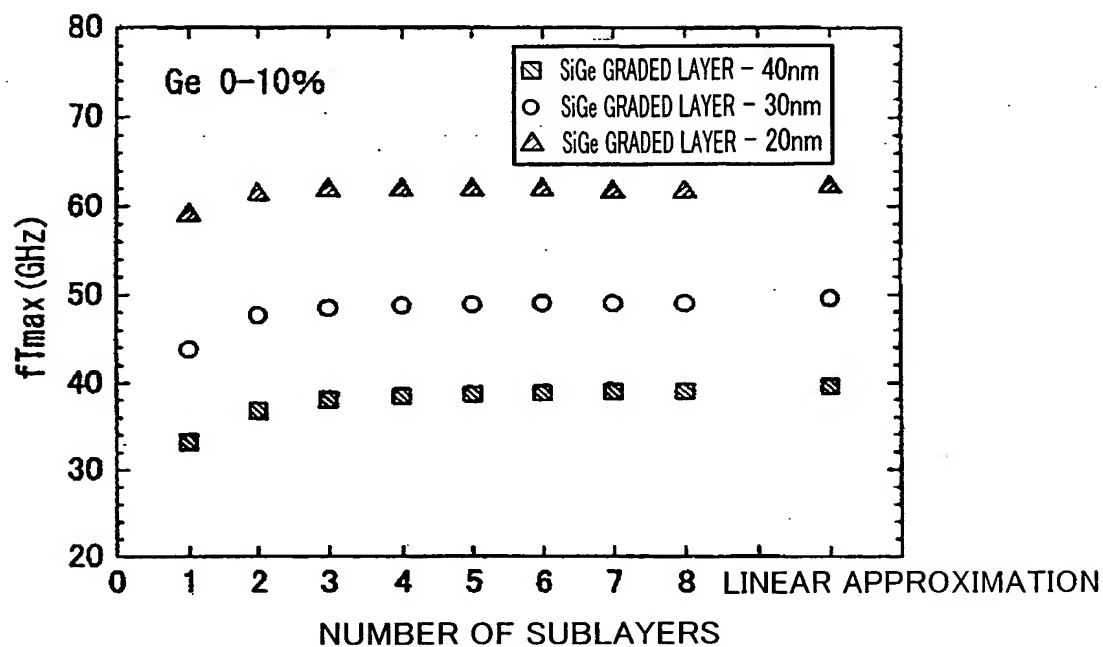


FIG. 10A

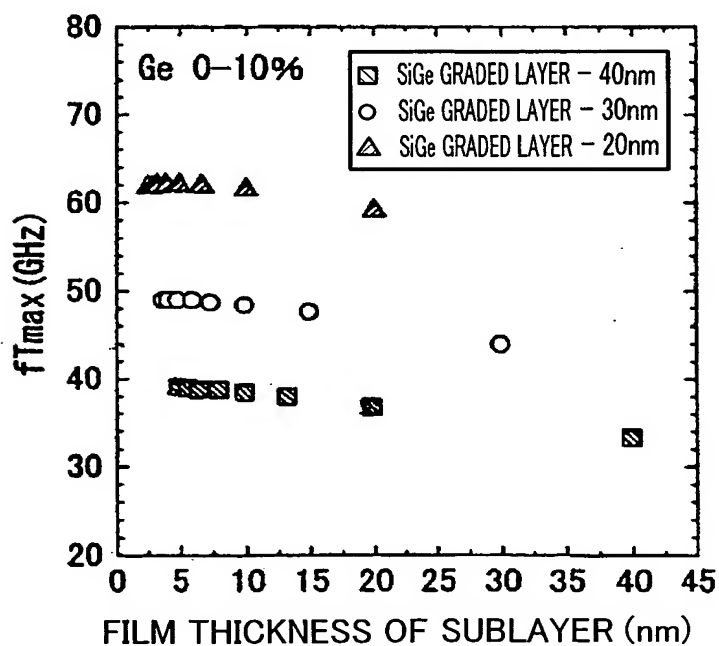


FIG. 10B

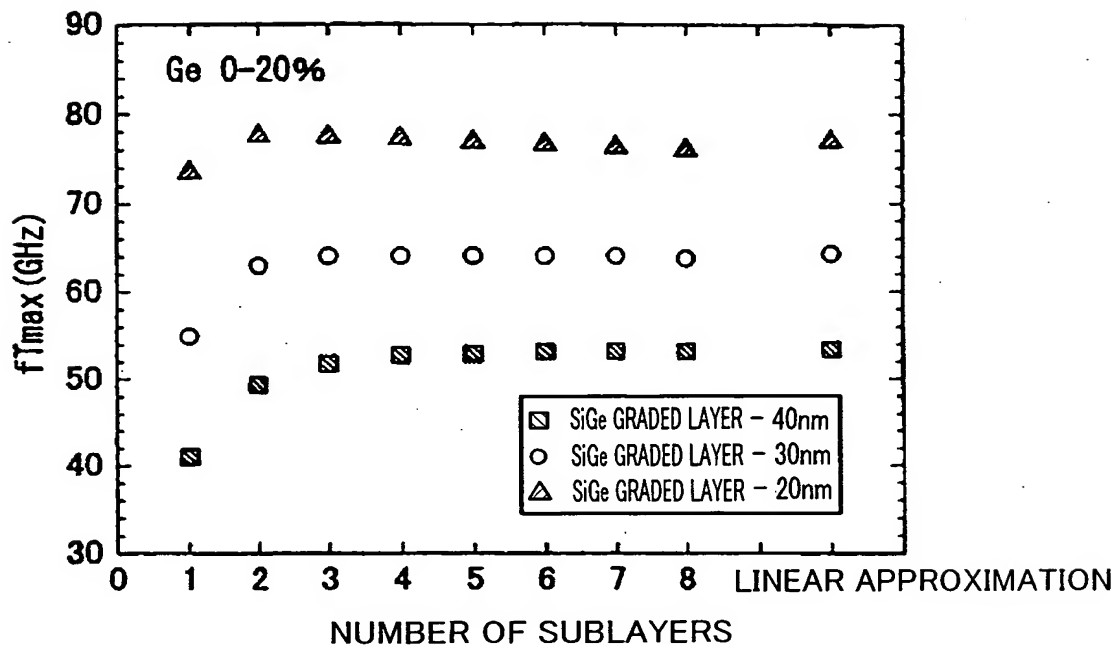


FIG. 11A

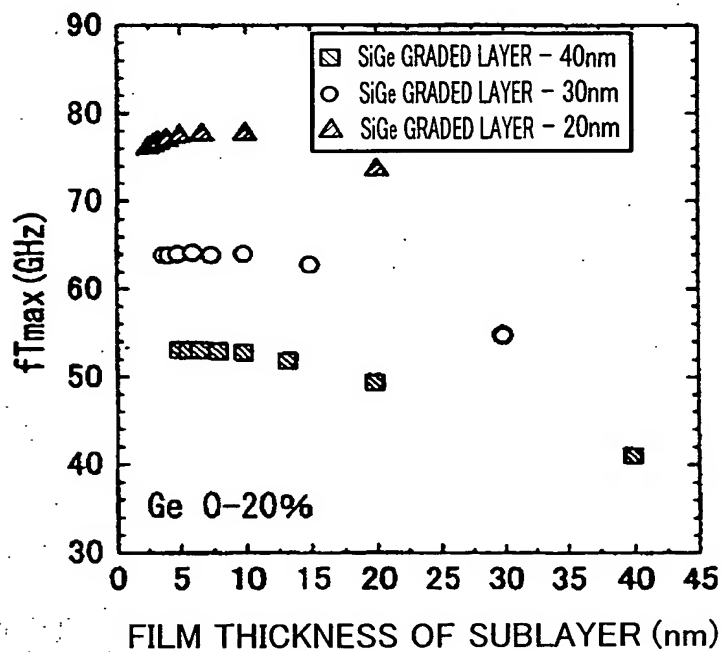


FIG. 11B

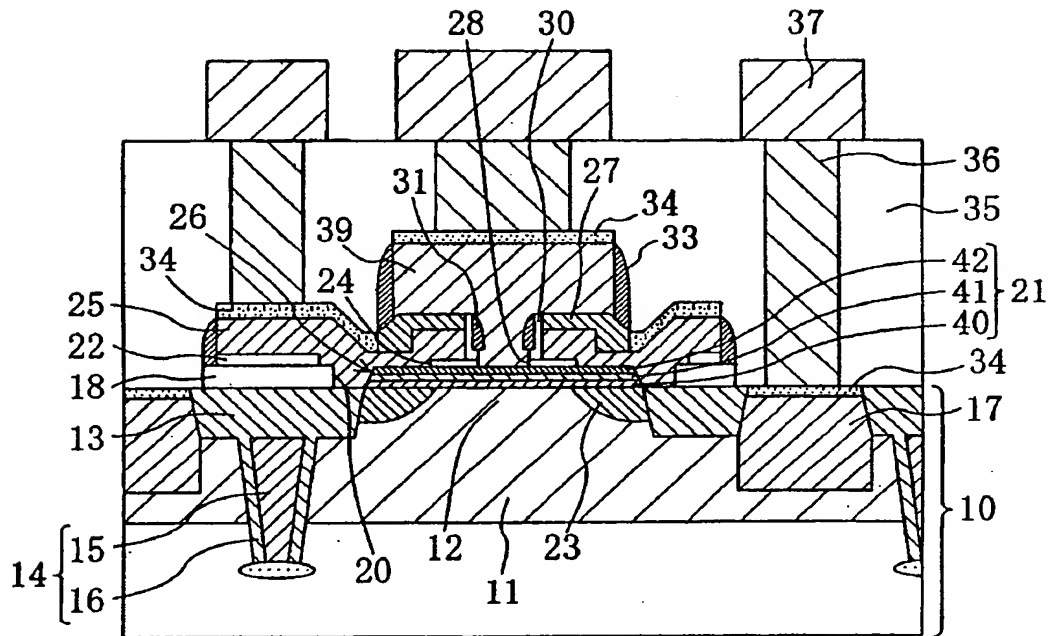


FIG. 12

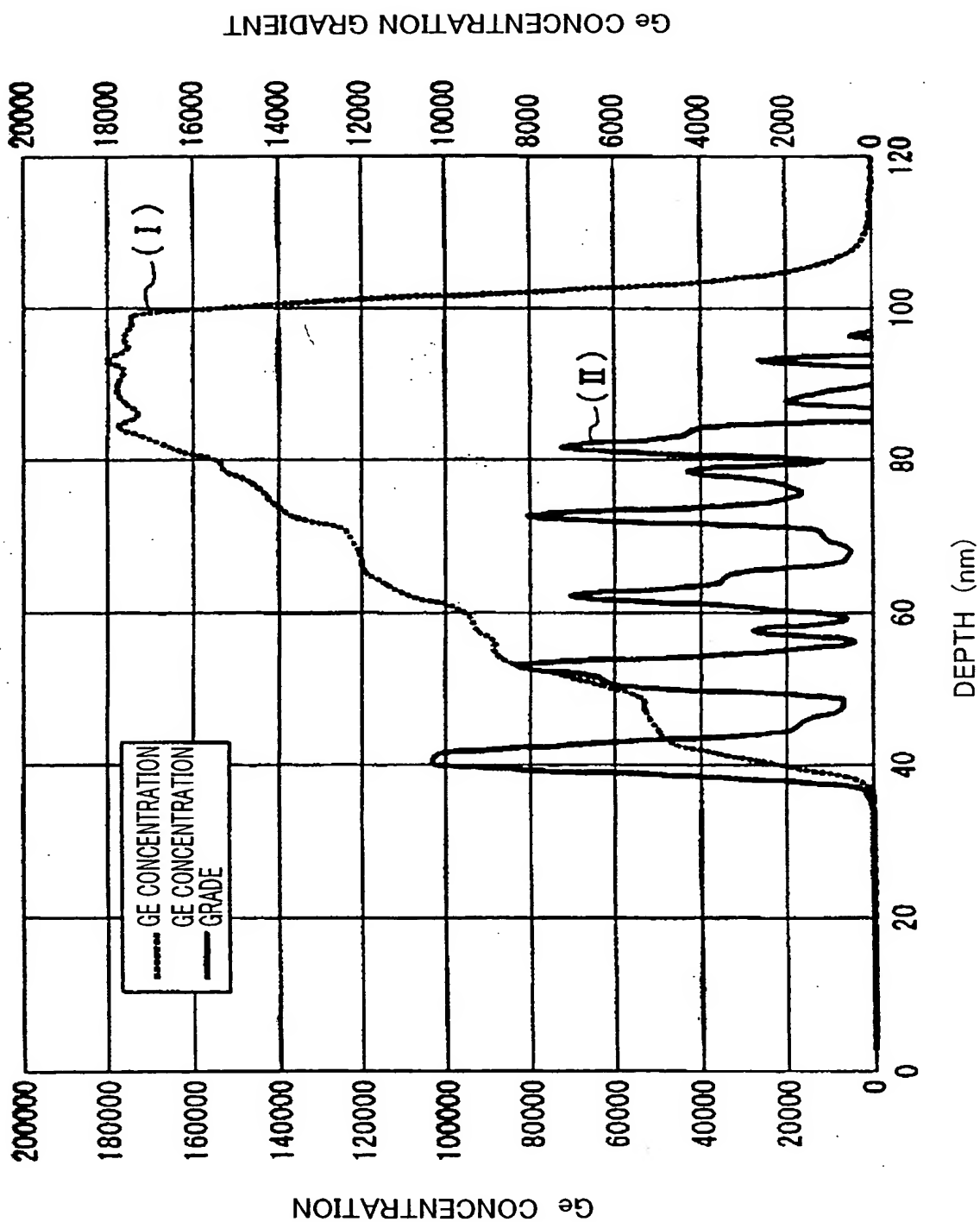
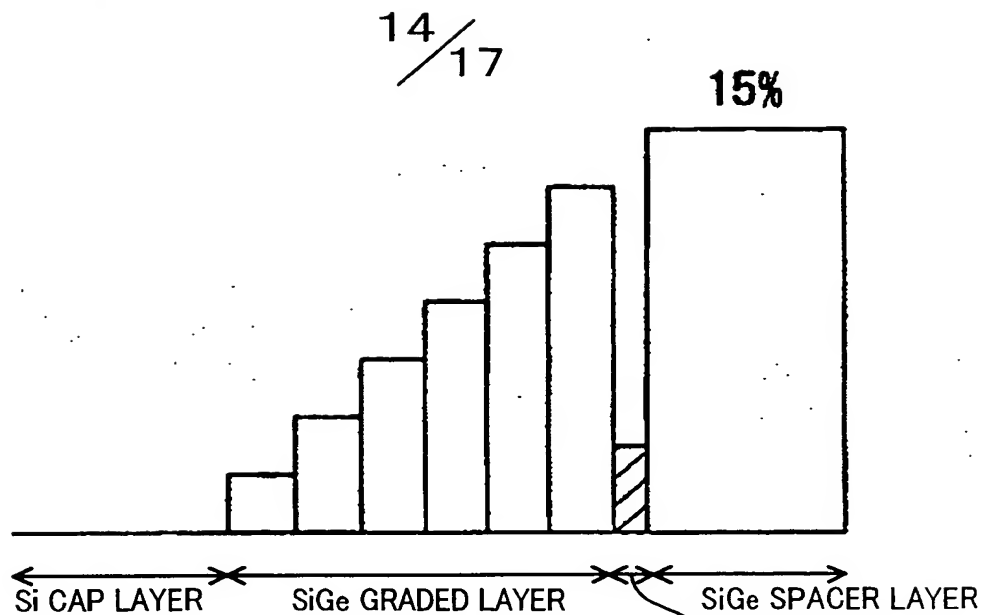


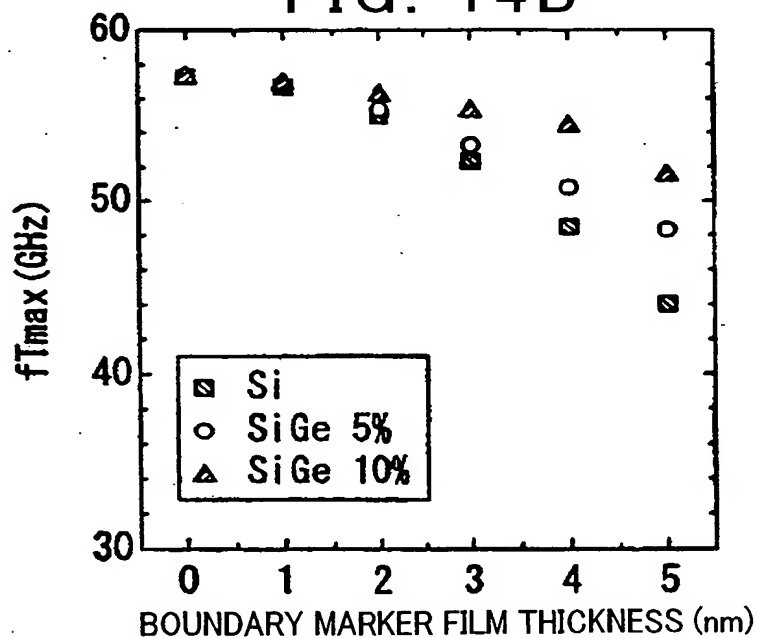
FIG. 13



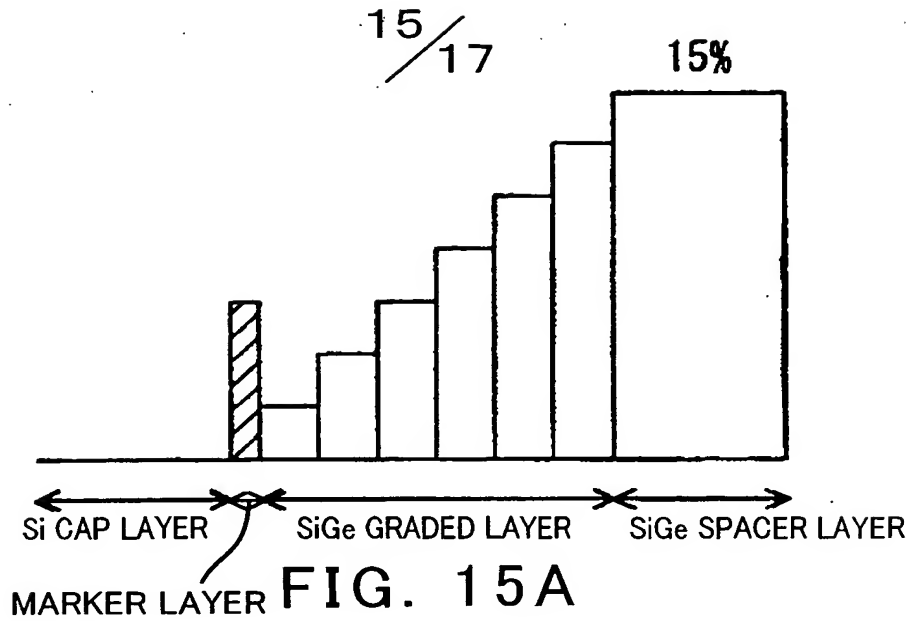
**FIG. 14A** MARKER LAYER

	Si MARKER LAYER		SiGe 5% MARKER LAYER		SiGe 10% MARKER LAYER	
MARKER FILM THICKNESS	fT <sub>max</sub> (GHz)	hFE	fT <sub>max</sub> (GHz)	hFE	fT <sub>max</sub> (GHz)	hFE
ZERO	57.2	137	57.2	137	57.2	137
1nm	56.5	136	56.6	136	56.8	136
2nm	54.9	135	55.2	135	56.1	136
3nm	52.2	133	53.2	297	55.2	135
4nm	48.4	131	50.7	132	54.3	291
5nm	44.0	128	48.2	145	51.4	134

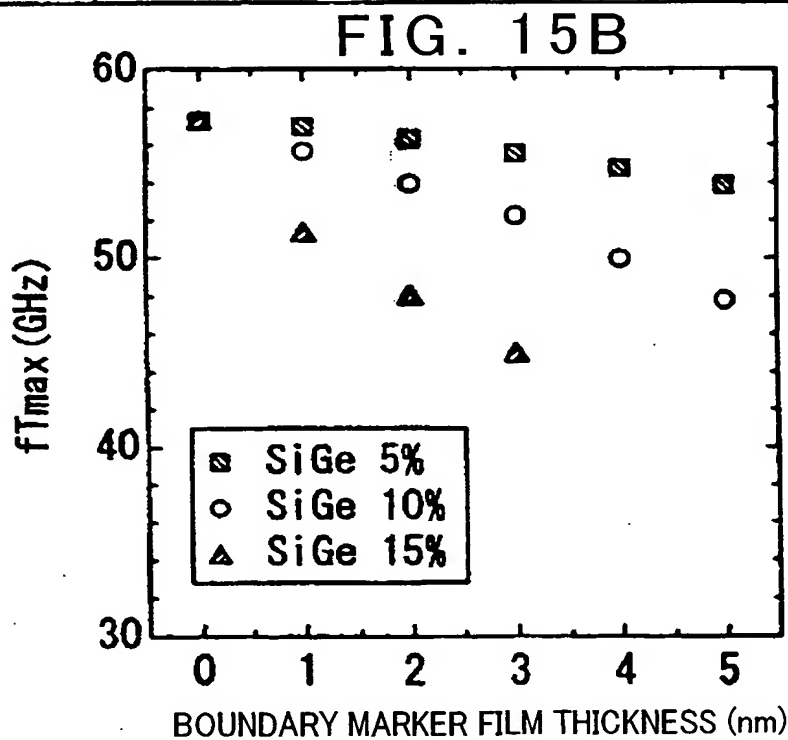
**FIG. 14B**



**FIG. 14C**

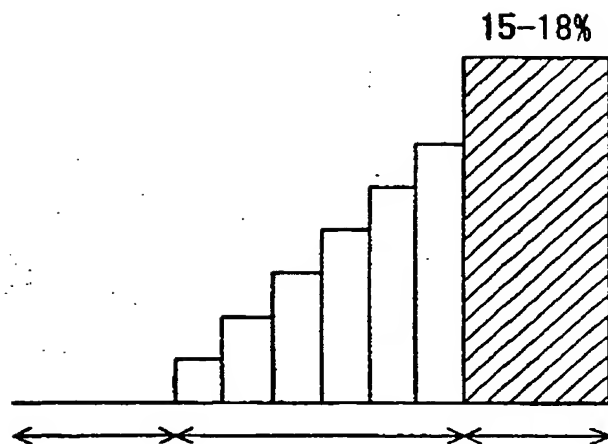


	SiGe 5% MARKER LAYER		SiGe10% MARKER LAYER		SiGe15% MARKER LAYER	
MARKER FILM THICKNESS	fTmax (GHz)	hFE	fTmax (GHz)	hFE	fTmax (GHz)	hFE
ZERO	57.2	137	57.2	137	57.2	137
1nm	56.9	139	55.6	156	51.2	176
2nm	56.2	134	53.9	151	47.9	169
3nm	55.5	131	52.2	147	44.9	165
4nm	54.7	131	49.9	150		
5nm	53.8	130	47.8	152		

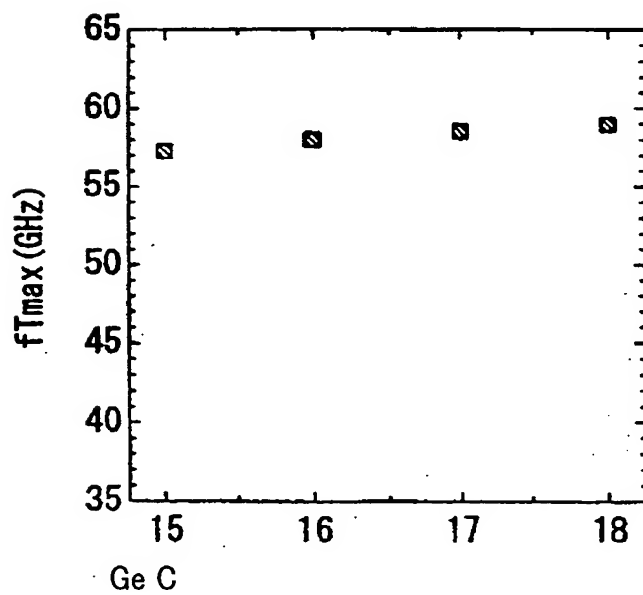


**FIG. 15C**

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	$f_{Tmax}$ (GHz)	hFE
15%	57.2	137
16%	57.9	137
17%	58.4	138
18%	58.9	138





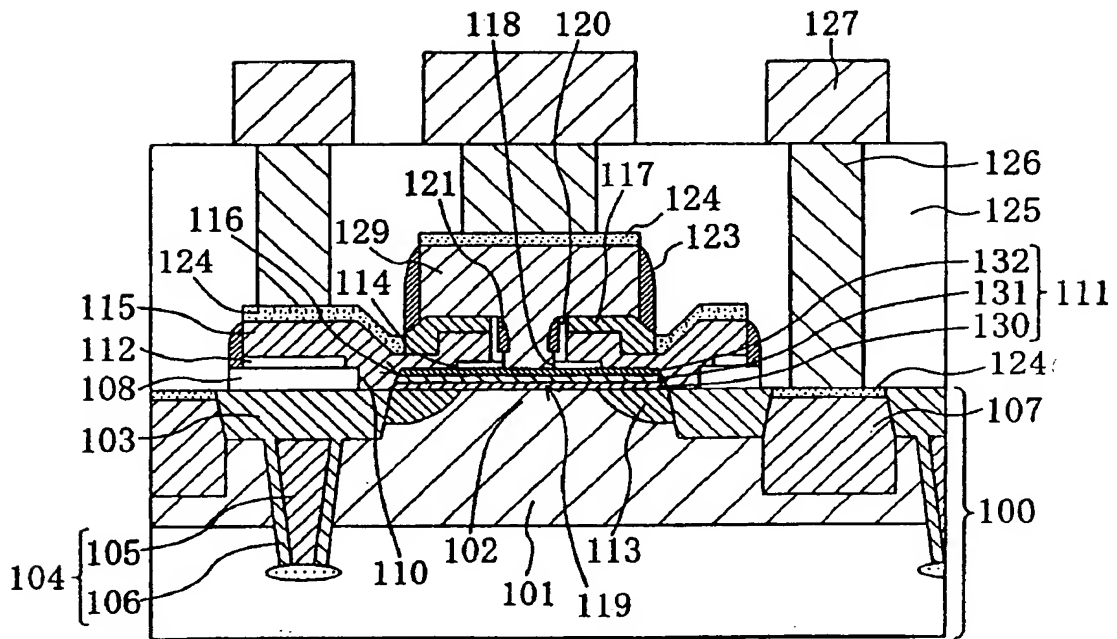


FIG. 17